Aon Risk Solutions
Global Risk Consulting
Actuarial and Analytics

Pennsylvania Insurance Department – Bureau of Special Funds

Actuarial Analysis for the Underground Storage Tank Indemnification Fund and the Tank Installers Indemnification Program

EXECUTIVE SUMMARY REPORT

As of June 30, 2011

Issue Date – November 23, 2011

555 East Lancaster Avenue
Suite 300
Radnor, PA 19087-5159
tel: 610.834.2100 • fax: 610.834.2176 • www.aon.com

Table of Contents

I. Introduction

Purpose

Aon Global Risk Consulting (AGRC) has been retained by the Pennsylvania Department of General Services (PA DGS) on behalf of the Pennsylvania Insurance Department, Bureau of Special Funds (PA BSF) to provide an actuarial review of the Underground Storage Tank Indemnification Fund (USTIF) and the Tank Installers' Indemnification Program (TIIP) as of June 30, 2011.

The estimated liabilities and projections included in this report are intended to be used to support the management of the USTIF and TIIP. These estimates are based on data valued as of June 30, 2011.

The exhibits referenced in this Executive Summary Report can be found in our full report titled "Actuarial Analysis for the Underground Storage Tank Indemnification Fund and the Tank Installers Indemnification Program" issued on November 23, 2011.

Background

The Underground Storage Tank Indemnification Fund began operation in February 1994 with the purpose of helping underground storage tank owners and operators comply with financial responsibility requirements established by the Federal Environmental Protection Agency (EPA) in the event of a regulated substance release from an eligible underground storage tank (UST). The USTIF also manages the Tank Installers' Indemnification Program which provides coverage to tank installers.

The USTIF is funded by the payment of capacity and throughput fees on regulated substances by tank owners and operators. The USTIF also receives revenue income from investments and other items. The TIIP is funded by the payment of annual certified company fees and tank installer activity fees by certified tank installer companies.

The USTIF issued a $100mln loan to the Commonwealth of Pennsylvania on October 15, 2002 (General Fund Loan). The loan deadline for repayment is currently 2014.

Scope

The specific scope of our analysis is to provide the following:

a. Estimate the unpaid loss and allocated loss adjustment expense (ALAE) as of June 30, 2011 for USTIF. The estimates will be provided on a net basis with respect to USTIF's limits and deductibles. Estimates will be provided on both a discounted and undiscounted basis.

b. Evaluate the financial status of the USTIF as of June 30, 2011.

c. Recommend fees for USTIF based on the Underground Storage Tank Indemnification Board (Board) requirements.

d. Prepare a cash flow report for USTIF that projects payments and investment income through the twenty year period beginning July 1, 2011. The sensitivity of the results to the underlying interest rate assumption will also be tested. Pro forma balance sheets and income statements will be prepared for this period.

e. Project the annual TIIP underwriting income for the ten year period beginning July 1, 2011.

* * * * * *

We, Charles B. Kullmann and Jay Matthew South are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

We performed this analysis using generally accepted actuarial principles and in accordance with all relevant Actuarial Standards of Practice.

Please contact us if you have any questions regarding this report.

Respectfully submitted,

Aon Global Risk Consulting

Charles Kullmann, PhD, FCAS, MAAA
Associate Director & Actuary
+1.610.834.2215
Charles.Kullmann@aon.com

Jay Matthew South, FCAS, MAAA
Associate Director & Actuary
+1.610.834.2291
Matthew.South@aon.com

II. Conditions and Limitations

Inherent Uncertainty

Actuarial calculations produce estimates of inherently uncertain future contingent events. We believe that the estimates provided represent reasonable provisions based on the appropriate application of actuarial techniques to the available data. However, there is no guarantee that actual future payments will not differ from estimates included herein.

Extraordinary Future Emergence

Our projections make no provision for the extraordinary future emergence of losses or types of losses not sufficiently represented in the historical data or which are not yet quantifiable.

Data Reliance

In conducting this analysis, we relied upon the provided data without audit or independent verification; however, we reviewed it for reasonableness and consistency. Any inaccuracies in quantitative data or qualitative representations could have a significant effect on the results of our review and analysis.

Discounting

The uncertainty inherent in the discounted unpaid loss estimates is greater than the uncertainty in the undiscounted loss estimates. This is because undiscounted liabilities normally contemplate an implicit risk margin for the variability in the loss estimation process (e.g., under- or over-estimating). Discounting takes away this implicit risk margin and would subject the unpaid loss estimates to additional risks such as yields on the investment portfolio and the timing risk. Future loss payments could occur more or less rapidly than expected due to random variations and the timing of large claim payments. We made no adjustment to account for these risk margins. The interest rates used in discounting the unpaid losses was provided by PA BSF. We express no opinion and have not independently evaluated the appropriateness of the interest rate.

Use and Distribution

Use of this report is limited to PA BSF for the specific purpose described in the Introduction section. Other uses are prohibited without an executed release with Aon.

Distribution by PA BSF is unrestricted. We recognize that this report may be distributed to third parties. We request that Aon be notified of further distribution of this report. The report should only be distributed in its entirety including all supporting exhibits.

III. Executive Summary

Summary of Results

I. Estimated Outstanding Loss and ALAE for USTIF as of June 30, 2011

The following table summarizes the estimated outstanding loss and ALAE for USTIF as of June 30, 2011. Please see the Observation/Findings section of this report for more details.

Estimated Unpaid Loss and ALAE at 6/30/2011

(1)	(2)	(3)	(4)
Report Year Beginning 1/1:	**Estimated Ultimate Loss and ALAE**	**Paid Loss and ALAE**	**Estimated Total Outstanding as of 6/30/2011**
1994	$18,174,087	$16,385,041	$1,789,046
1995	50,686,304	43,374,296	7,312,008
1996	65,957,797	53,592,372	12,365,425
1997	83,747,463	68,349,233	15,398,230
1998	119,234,164	95,304,283	23,929,881
1999	143,100,000	108,548,127	34,551,873
2000	88,130,925	64,238,729	23,892,196
2001	101,079,871	70,330,364	30,749,507
2002	84,103,042	54,530,815	29,572,227
2003	54,687,573	32,578,695	22,108,878
2004	80,908,281	43,599,855	37,308,426
2005	57,516,460	28,462,844	29,053,616
2006	45,218,568	19,560,516	25,658,052
2007	51,975,654	20,335,786	31,639,868
2008	50,043,792	15,411,589	34,632,203
2009	52,750,000	10,434,475	42,315,525
2010	49,384,210	4,393,717	44,990,493
1/1 - 6/30/2011	24,724,026	176,467	24,547,559
Total	1,221,422,216	749,607,204	471,815,012

II. Financial Position for USTIF as of June 30, 2011

The following table presents USTIF's estimated financial position as of June 30, 2011. The results are based on our ultimate loss and ALAE projections and the financial statement

information and projections provided by USTIF. Please see the Cash Flow and Actuarial Assumptions section of this report for more details.

Financial Position at 6/30/2011

(1)	(2)	(3)	(4)
Assets		**Undiscounted**	**Discounted at 4%**
Cash and Invested Assets		$131,654,580	$131,654,580
DCED Loan Receivable		-	-
General Fund Loan Receivable		67,500,000	67,500,000
Interest receivable on GF Loan		13,795,450	13,795,450
Total Assets		212,950,030	212,950,030
Liabilities			
Outstanding Loss and ALAE		471,815,012	376,853,815
Other Liabilities		11,024,638	11,024,638
Total Liabilities		482,839,650	387,878,453
Surplus / (Deficit)		(269,889,620)	(174,928,423)

The discounted financial position only discounts the outstanding loss and ALAE expense. The interest rate of 4% used for discounting was selected based on discussions with USTIF. The discount assumes that there are sufficient assets available which have suitably scheduled maturities and/or adequate liquidity to meet the assumed cash flow and investment requirements. This is not the case based on the current projections as the discounted position corresponds to a deficit.

We have been asked to evaluate the sensitivity of the results to the interest rate used for discounting. The total Surplus / (Deficit) based on interest rates of 3.5% and 4.5% are as follows:

	Discounted at 3.5%	**Discounted at 4.0%**	**Discounted at 4.5%**
Surplus / (Deficit)	(184,841,651)	(174,928,423)	(165,472,924)

III. Recommendations Regarding USTIF Fees

On September 29, 2003 the Board established a fee setting objective that requires having positive Cash and Invested Assets for a projection period of at least five years. The following tables (Cash Flow Table 1.1 and 1.2) present ten year cash flow projections for the current fee structure under the two scenarios requested by USTIF. Scenario 1 assumes that the GF Loan principal will be paid in full by 2014. Scenario 2 assumes that the GF loan will be renegotiated in 2014 and that future principal payments will consist of $5mln per year beginning in 2014. Under both scenarios, our model predicts that the five year requirement for positive Cash and Invested Assets will be met under the current fee structure (Capacity / Throughput fees of $.0825 / $.011). In other words, no fee increases are necessary under the assumptions underlying this analysis and the requirement that positive cash and invested assets be maintained over a five year time horizon. However, the deficit will continue to grow during this period.

Cash Flow Table 1.1

GF Loan Scenario 1: Full Payment in 2014

Fee Structure : 0.0% Increase in Fees Effective 1/1/2012

All Values in $000's

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Fiscal Year Beginning	Initial Cash & Invested Assets	Fee Revenue	Loss & ALAE Payments	Investment Income at 4% per annum	Other Cash Flows	Total Cash Flow	Ending Cash and Invested Assets	Undiscounted Year End Deficit	Discounted Year End Deficit
7/1/2011	131,655	59,300	(57,738)	5,019	(13,942)	(7,361)	124,293	(268,151)	(175,709)
7/1/2012	124,293	58,903	(58,038)	4,810	(8,967)	(3,293)	121,000	(266,448)	(175,960)
7/1/2013	121,000	58,508	(59,025)	4,615	(10,722)	(6,624)	114,376	(269,070)	(179,984)
7/1/2014	114,376	58,116	(60,614)	5,994	73,442	76,938	191,314	(271,518)	(183,269)
7/1/2015	191,314	57,728	(61,264)	7,361	(11,052)	(7,227)	184,087	(276,961)	(188,981)
7/1/2016	184,087	57,342	(62,671)	7,064	(9,627)	(7,891)	176,197	(283,868)	(195,591)
7/1/2017	176,197	56,959	(63,432)	6,712	(10,308)	(10,069)	166,127	(294,368)	(205,230)
7/1/2018	166,127	56,579	(63,558)	6,293	(10,609)	(11,295)	154,833	(308,225)	(217,694)
7/1/2019	154,833	56,202	(64,377)	5,811	(10,922)	(13,286)	141,547	(325,701)	(233,277)
7/1/2020	141,547	55,828	(64,184)	5,270	(11,248)	(14,334)	127,212	(346,819)	(252,046)
7/1/11-6/30/21	131,655	575,466	(614,900)	58,949	(23,957)	(4,442)	127,212	(346,819)	(252,046)

Please see the exhibit “Pro Forma 1.3 - Cash Flow” for the continuation of this projection through 6/30/2031. The Cash and Invested Assets are expected to remain positive under the assumptions in Cash Flow Table 1.1 through 6/30/2026.

The cash flow projections under Scenario 2 are as follows:

Cash Flow Table 1.2

GF Loan Scenario 2: Renegotiate Loan in 2014

Fee Structure : 0.0% Increase in Fees Effective 1/1/2012

All Values in $000's

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Fiscal Year Beginning	Initial Cash & Invested Assets	Fee Revenue	Loss & ALAE Payments	Investment Income at 4% per annum	Other Cash Flows	Total Cash Flow	Ending Cash and Invested Assets	Undiscounted Year End Deficit	Discounted Year End Deficit
7/1/2011	131,655	59,300	(57,738)	5,019	(13,942)	(7,361)	124,293	(268,151)	(175,709)
7/1/2012	124,293	58,903	(58,038)	4,810	(8,967)	(3,293)	121,000	(266,448)	(175,960)
7/1/2013	121,000	58,508	(59,025)	4,615	(10,722)	(6,624)	114,376	(269,070)	(179,984)
7/1/2014	114,376	58,116	(60,614)	4,439	(4,284)	(2,343)	112,034	(272,878)	(184,629)
7/1/2015	112,034	57,728	(61,264)	4,290	(6,052)	(5,298)	106,735	(281,015)	(193,035)
7/1/2016	106,735	57,342	(62,671)	4,070	(4,627)	(5,885)	100,851	(290,562)	(202,284)
7/1/2017	100,851	56,959	(63,432)	3,798	(5,308)	(7,983)	92,868	(303,645)	(214,506)
7/1/2018	92,868	56,579	(63,558)	3,463	(5,609)	(9,125)	83,743	(320,025)	(229,494)
7/1/2019	83,743	56,202	(64,377)	3,068	(5,922)	(11,030)	72,713	(339,961)	(247,536)
7/1/2020	72,713	55,828	(64,184)	2,616	(6,248)	(11,988)	60,725	(363,471)	(268,699)
7/1/11 - 6/30/21	131,655	575,466	(614,900)	40,188	(71,683)	(70,929)	60,725	(363,471)	(268,699)

The Cash and Invested Assets are expected to remain positive under the assumptions in Cash Flow Table 1.2 through 6/30/2024. Additional details regarding the scenario modeled in Cash Flow Table 1.2 are available upon request.

We have been asked to evaluate the sensitivity of these results to the interest rate used for discounting. The total combined results for 7/1/11 – 6/30/21 based on interest rates of 3.5% and 4.5% under each of the GF loan scenarios are as follows:

Cash Flow Results under Additional Investment Rates – 7/1/11 through 6/30/2021 Combined

GF Loan Scenario 1: Full Payment in 2014

Fee Structure : 0.0% Increase in Fees Effective 1/1/2012

All Values Shown in $000's

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Interest Rate	Initial Cash & Invested Assets	Fee Revenue	Loss & ALAE Payments	Investment Income	Other Cash Flows	Total Cash Flow	Ending Cash and Invested Assets	Undiscounted Year End Deficit	Discounted Year End Deficit
3.5%	131,655	575,466	(614,900)	50,358	(23,957)	(13,033)	118,621	(355,410)	(270,434)
4.0%	131,655	575,466	(614,900)	58,949	(23,957)	(4,442)	127,212	(346,819)	(252,046)
4.5%	131,655	575,466	(614,900)	67,931	(23,957)	4,540	136,195	(337,837)	(233,742)

Cash Flow Results under Additional Investment Rates – 7/1/11 through 6/30/2021 Combined

GF Loan Scenario 2: Renegotiate Loan in 2014

Fee Structure : 0.0% Increase in Fees Effective 1/1/2012

All Values Shown in $000's

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Interest Rate	Initial Cash & Invested Assets	Fee Revenue	Loss & ALAE Payments	Invest. Income	Other Cash Flows	Total Cash Flow	Ending Cash and Invested Assets	Undiscounted Year End Deficit	Discounted Year End Deficit
3.5%	131,655	575,466	(614,900)	34,191	(71,683)	(76,927)	54,728	(369,469)	(284,493)
4.0%	131,655	575,466	(614,900)	40,188	(71,683)	(70,929)	60,725	(363,471)	(268,699)
4.5%	131,655	575,466	(614,900)	46,501	(71,683)	(64,617)	67,038	(357,159)	(253,064)

Although we have varied the interest rate in the above two tables, the GF Loan interest rate remains unchanged at 0.5% per annum.

IV. Alternative Fee Structures

As shown in the above cash flow projections, the deficit will continue to grow under the current fee structure. In order to ensure that the deficit does not grow over the ten year time horizon, the fees would have to be increased by approximately 11.6% under GF Loan scenario 1 and 14.1% under GF Loan scenario 2. Cash Flow Scenario 1 under the revised fee structure (+11.6%) is presented in the following table.

Cash Flow Table 2.1

GF Loan Scenario 1: Full Payment in 2014

Fee Structure : 11.6% Increase in Fees Effective 1/1/2012 ($.0921 / $.0123)

All Values Shown in $000's

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Fiscal Year Beginning	Initial Cash & Invested Assets	Fee Revenue	Loss & ALAE Payments	Investment Income at 4% per annum	Other Cash Flows	Total Cash Flow	Ending Cash and Invested Assets	Undiscounted Year End Deficit	Discounted Year End Deficit
7/1/2011	131,655	62,739	(57,738)	5,087	(13,942)	(3,853)	127,801	(264,643)	(172,200)
7/1/2012	127,801	65,735	(58,038)	5,087	(8,967)	3,817	131,618	(255,830)	(165,342)
7/1/2013	131,618	65,295	(59,025)	5,176	(10,722)	0,723	132,341	(251,105)	(162,019)
7/1/2014	132,341	64,858	(60,614)	6,847	73,442	84,533	216,875	(245,958)	(157,709)
7/1/2015	216,875	64,424	(61,264)	8,517	(11,052)	0,626	217,500	(243,548)	(155,568)
7/1/2016	217,500	63,994	(62,671)	8,534	(9,627)	0,230	217,731	(242,334)	(154,056)
7/1/2017	217,731	63,567	(63,432)	8,506	(10,308)	(1,668)	216,062	(244,433)	(155,295)
7/1/2018	216,062	63,143	(63,558)	8,422	(10,609)	(2,603)	213,460	(249,599)	(159,067)
7/1/2019	213,460	62,722	(64,377)	8,287	(10,922)	(4,291)	209,168	(258,080)	(165,655)
7/1/2020	209,168	62,304	(64,184)	8,104	(11,248)	(5,024)	204,145	(269,887)	(175,114)
7/1/11 - 6/30/21	131,655	638,780	(614,900)	72,567	(23,957)	72,490	204,145	(269,887)	(175,114)

An alternative to a one-time fee increase at 1/1/2012 would be level annual fee increases during the ten year period. The annual increase required to keep the deficit from growing under GF Loan Scenario 1 is approximately 2.4%.

The Scenario 2 cash flow projections under the revised fee structure (+14.1%) are presented in the following table.

Cash Flow Table 2.2

GF Loan Scenario 2: Renegotiate Loan in 2014

Fee Structure : 14.1% Increase in Fees Effective 1/1/2012 ($.0941 / $.0126)

All Values Shown in $000's

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Fiscal Year Beginning	Initial Cash & Invested Assets	Fee Revenue	Loss & ALAE Payments	Investment Income at 4% per annum	Other Cash Flows	Total Cash Flow	Ending Cash and Invested Assets	Undiscounted Year End Deficit	Discounted Year End Deficit
7/1/2011	131,655	63,481	(57,738)	5,102	(13,942)	(3,097)	128,557	(263,887)	(171,444)
7/1/2012	128,557	67,208	(58,038)	5,146	(8,967)	5,349	133,907	(253,542)	(163,054)
7/1/2013	133,907	66,758	(59,025)	5,296	(10,722)	2,307	136,213	(247,233)	(158,147)
7/1/2014	136,213	66,311	(60,614)	5,477	(4,284)	6,889	143,103	(241,809)	(153,560)
7/1/2015	143,103	65,867	(61,264)	5,695	(6,052)	4,247	147,349	(240,401)	(152,421)
7/1/2016	147,349	65,427	(62,671)	5,857	(4,627)	3,987	151,336	(240,076)	(151,799)
7/1/2017	151,336	64,991	(63,432)	5,978	(5,308)	2,228	153,564	(242,948)	(153,810)
7/1/2018	153,564	64,557	(63,558)	6,050	(5,609)	1,440	155,004	(248,763)	(158,232)
7/1/2019	155,004	64,127	(64,377)	6,077	(5,922)	(0,96)	154,908	(257,765)	(165,341)
7/1/2020	154,908	63,700	(64,184)	6,062	(6,248)	(0,671)	154,238	(269,959)	(175,186)
7/1/11 - 6/30/21	131,655	652,426	(614,900)	56,741	(71,683)	22,583	154,238	(269,959)	(175,186)

An alternative to a one-time fee increase at 1/1/2012 would be level annual fee increases during the ten year period. The annual increase required to keep the deficit from growing under GF Loan Scenario 2 is approximately 2.9%.

V. Projected Underwriting Income for TIIP

The projected TIIP underwriting income for the period 7/1/2011 through 6/30/2021 is presented in the following table. Based on these projections, the current fee schedule is expected to generate sufficient revenue to cover projected losses and expenses for this 10 year period. The total fee revenue for the periods prior to 7/1/2011 is approximately $3mln with total reported loss and paid ALAE expense for this period of approximately $1.2mln.

TIIP Loss and Expense Projections

Incurred by Fiscal Year

(1)	(2)	(3)	(4)	(5)
Fiscal Year	**Total Revenue**	**Estimated Total Annual Cost**	**Underwriting Income**	**Cumulative Underwriting Income**
7/1/11 - 6/30/12	287,670	216,300	71,370	71,370
7/1/12 - 6/30/13	287,670	225,382	62,288	133,658
7/1/13 - 6/30/14	287,670	234,849	52,821	186,479
7/1/14 - 6/30/15	287,670	244,717	42,953	229,432
7/1/15 - 6/30/16	287,670	255,003	32,667	262,099
7/1/16 - 6/30/17	287,670	265,726	21,944	284,043
7/1/17 - 6/30/18	287,670	276,904	10,766	294,809
7/1/18 - 6/30/19	287,670	288,556	(886)	293,923
7/1/19 - 6/30/20	287,670	300,704	(13,034)	280,889
7/1/20 - 6/30/21	287,670	313,367	(25,697)	255,192
Total	2,876,700	2,621,508	255,192	

Observations/Findings

The management of USTIF has initiated a number of cost containment initiatives and case reserving changes in recent years.

- An "early closing program" began in 2004 in which the PA BSF began working with the PA Department of Environmental Protection (DEP) to identify "stalled" sites and then putting them out for competitive bidding.
- A 60 day reporting requirement was instituted in 2003 (Pa Code 977.34) which requires that claims be filed with USTIF within 60 days after confirmation of the release or coverage will be denied.
- Fixed price contracts have been aggressively pursued since 2004. The process involves competitive bidding for the site assessment and remediation work. In addition to cutting costs, the use of fixed price contracts is expected to reduce the time required for claim closure.

- The EPA mandated tank upgrade (1998) and more frequent inspections by the DEP are expected to reduce claim frequency. The mandated tank upgrade requires tank owners and operators to protect their tanks from corrosion and install spill-and-overflow prevention equipment. The owners and operators were given approximately ten years to comply with this requirement.

- USTIF modified its reserving philosophy in 2003. The current approach is to set-up a preliminary reserve of $125K until claim eligibility is determined. Once eligibility is confirmed, the preliminary reserve is increased to $175K. A more refined case reserve is then set within a year based on the specific circumstances of the claim.

These changes appear to be having a positive impact on USTIF's loss experience. We have observed the following in our review of the data:

- Claim frequency has been declining in recent periods.

- Claims are being closed more quickly and more recent periods have a higher percentage of paid loss to incurred loss compared to prior periods at the same age.

- The average expense cost per claim has been increasing. As noted above, PA BSF expects the increase in expense cost to lead to a reduction in indemnity costs. It's still early to draw a conclusion from the loss data, but we will continue to monitor the indemnity losses as they mature and evaluate the impact.

IV. Program Description

Pennsylvania's Underground Storage Tank Indemnification Fund began operation in February 1, 1994 with the purpose of assisting Pennsylvania tank owners in meeting their financial responsibilities due to releases from underground storage tanks.

The fund covers corrective action and third party liability costs on eligible claims for $1,500,000 above a $5,000 deductible for each per tank per occurrence. Claim payments are limited to $1,500,000 per occurrence with an aggregate limit of $1,500,000 or $3,000,000, depending on whether an owner or operator has less than or more than 100 USTs, respectively. Prior to 1/2002, the limit was $1,000,000 and prior to 1/1995, the deductible was $10,000.

The Bureau of Special Funds sustains the operation of USTIF by means of the throughput and capacity fees paid by UST owners and operators, as well as the income generated from the investment of assets. The current throughput and capacity fees are $0.011 per gallon and $0.0825 per gallon, respectively. For the throughput fees, each distributor must assess the fee on regulated substance deliveries to regulated USTs. The bulk of throughput fees are generated by gasoline deliveries. For the capacity fee, the owner or operator of USTs storing heating oil, diesel fuel, kerosene, and used motor oil products must pay the annual fee per gallon of tank capacity. These fees have varied over time.

The Bureau of Special Funds also operates the Tank Installers' Indemnification Program to cover the financial liabilities for all certified Pennsylvania tank installers. TIIP went into effect on January 1, 2002. The same coverage as the tank owners is provided for installers. The current TIIP fee structure consists of activity and company fees. All certified companies must pay an annual fee of $1,000. Activity fees are $15 for tank removals and $50 for installations or modifications.

The actuarial analysis for USTIF is in the main section of our review. The actuarial analysis for TIIP is provided in the Appendix.

V. Data

Our analysis was performed using historical loss and exposure information provided by USTIF and their third party claims administrator, ICF Consulting. It's our understanding that the loss data provided was net of all applicable limits and deductibles.

The data used in our analysis included the following:

USTIF Data

- Paid and incurred loss triangles valued as of 6/30/2011
- Paid ALAE expense triangles valued as of 6/30/2011
- Open, closed and reported claim count triangles valued as of 6/30/2011
- Detailed listing of fixed priced contracts
- Detailed claims listing underlying the triangles and valued as of 6/30/2011
- Fee history and number of registered tanks by year
- Financial Statements as of June 30, 2011
- Investment income and growth rate assumptions
- DCED and GF Loan repayment schedules
- Expected future ICF consulting costs

TIIP Data

- Detailed listing of all TIIP claims valued as of 6/30/2011
- Historical fee revenue by fiscal year
- Number of installations, major modifications & tank removals/closures by year
- Projected number of certified companies for 2011/12
- Projected Unallocated Loss Adjustment Expense (ULAE) for 2011/12
- Expected growth rate assumptions

VI. Actuarial Analysis

Overview

This analysis applies multiple actuarial reserving methods to arrive at a range of ultimate loss or ALAE indications by policy period. A final ultimate loss or ALAE estimate is selected based on a review of the indications under the methods considering the strengths and weaknesses of each method and the circumstances surrounding the data. Specifically, we employed the following actuarial methods:

- Paid Development Method (Loss and ALAE)
- Incurred Development Method (Loss Only)
- Reported Claim Count Development Method
- Incurred Generalized Cape Cod Method (Loss Only)
- Paid Generalized Cape Cod Method (Loss and ALAE)

A brief description of each method is provided in the following paragraphs.

Methods/Models of Estimating Unpaid Loss and ALAE Expense

Development Methods

The distinguishing characteristic of the development method is that ultimate estimates for each period are produced from recorded values assuming that future claims' development is similar to prior years' development. In this method, development triangles are used to track the development history of a specific group of claims. The underlying assumption in the development technique is that claims recorded to date will continue to develop in a similar manner in the future. That is, the development technique assumes that the relative change in a given year's claims from one evaluation point to the next is similar to the relative change in prior years' claims at similar evaluation points.

An implicit assumption in the development technique is that, for an immature policy year, the claims activity observed thus far tells you something about the claims activity yet to be observed. As a result, the development method is considered a method that is responsive to the known claims data. For instance, the paid development method tends to give a very high (or very low) estimate for an immature year with a very high (or very low) volume of payments. Other important assumptions of the development method include: consistent claim processing, a stable mix of types of claims, stable policy limits, and stable reinsurance (or excess insurance) retention limits throughout the experience period.

The development method is implemented using the following steps:

1. Compile the claims data in a development triangle to compare the movements in each prior period's data at equal age intervals.

2. Calculate Age-to-Age factors at each age for the historical periods.

3. Review the factors at each age and select the age factors that will apply in the future.

4. Select a tail factor that represents the development that will occur beyond the age horizon provided by the historical data.

5. Calculate the cumulative development factors ("Age-to-Ultimate" factors) by combining the incremental Age-to-Age factors.

6. Apply the Age-to-Ultimate factors to the claims data at the current valuation to arrive at the ultimate estimates.

Generalized Cape Cod Method

As discussed above, the development methods can be very responsive to the claims data. This may not be a desirable characteristic for immature years in which the claims data does not provide predictive value. This is particularly true for long-tailed lines of business such as environmental coverage types which are typically slow to develop. An alternative approach which is not responsive to the claims data would be to assume an a priori or predetermined ultimate outcome until the policy period's data becomes predictive. ("Expected Method").

The Generalized Cape Cod (GCC) Method can be thought of as a mixture of the Expected and Development approaches. The GCC method splits the ultimate estimate into two components: the known component and the expected unknown component. The split between the known and unknown components is determined by the development patterns identified in the development method. The inclusion of the expected unknown component adds stability to the method and the split based on the development pattern serves to add more or less stability based on the expected predictive value of the loss data.

The unknown component is estimated by combining the development method ultimate estimates from "nearby" periods after adjustments are made for differences in exposure and cost levels. For instance, the differences could be due to inflation, coverage changes or other environmental factors. When the GCC method is implemented, the weight given to nearby periods in the calculation of the unknown component is controlled by the value assigned to the Cape Cod decay factor. The differences in exposure and cost levels are controlled through the use of an exposure proxy and trend index.

Cash Flow and Actuarial Assumptions

The main assumptions of our USTIF cash flow and actuarial analyses follow; please see the Description of Appendix Exhibits section for details on the TIIP analysis.

- The future throughput revenue is difficult to project given the recent fluctuations in the price of oil. Our assumptions are based on the Energy Information Administration's (EIA) review of the Middle Atlantic projected motor gasoline consumption growth rate. The EIA provides an annual energy outlook which projects the consumption growth rate under a number of scenarios. Based on a review of the results, we have selected a long-term negative growth rate of 0.75%. The 2011/12 throughput revenue is expected to be $53mln based on a review of the historical information and discussions with USTIF.

- The future number of registered tanks is expected to grow at a rate of 0% based on discussions with USTIF. As a result, the capacity fee growth rate is also assumed to be 0% in the absence of fee increases. The 2011/12 capacity fee revenue is expected to be $6.3mln based on a review of the historical information and discussions with USTIF.

- The return on cash and invested assets is assumed to be 4% based on discussions with USTIF. We have also evaluated the sensitivity of the results to an increase or decrease in this rate of 0.5%.

- The DCED loan balance is now $0.

- There is uncertainty regarding the principal payment schedule for the General Fund loan. We have been asked to model two scenarios. Scenario 1 assumes that the GF Loan principal will be paid in full by 2014. Scenario 2 assumes that the GF loan will be renegotiated in 2014 and that future principal payments will consist of $5mln per year beginning in 2014. Under both scenarios, the interest rate applied to the outstanding loan balance and the interest receivable is assumed to be 0.5%. This rate is tied to a Treasury Fund and was provided by PA BSF.

- The expense inflation trend applicable to both claims administration and other expenses is assumed to 4% based on discussions with USTIF. The other expense cost expectations for 2011/12 were selected based on a review of the financial statements and discussions with USTIF. Claims administration cost projections are discussed below.

- Our pro forma balance sheet includes a liability titled "other liabilities" which captures the estimated liability created by USTIF's four week lag in processing payments. The liability is set equal to 7.8% of the loss and ALAE payments for the prior twelve month period.

- The income and cash flow analyses include an item titled "DEP Assistance". These expected payments are a result of Senate Bill 722 passed in 2005. Section 5 of the act reads "The department may request the board to reimburse the department up to $3mln annually for its cost related to investigating, determining responsibility, overseeing remediation and third party response and closing out cases of spills and leaks related to storage tanks beginning in fiscal year 2007-2008." There is considerable uncertainty in the expected payments related to this Bill due to their dependence on factors such as the number of claims, number of grants applied for, the amount of money received from the General Fund and the amount of Federal stimulus money. Based on discussions with USTIF, we have made the following assumptions: The annual costs for

Environmental, Pollution Prevention and Catastrophe Release are expected to be $2.93mln in 2011/11. These costs are assumed to be level going forward. Administrative expenses are assumed to be $690K in 2011/12 with a future annual trend rate of 4%. Operational expenses are assumed to be $1.34mln in 2011/12 with a future annual trend rate of 4%. As noted above, the annual operational expense costs are not to exceed $3mln.

- USTIF provided estimated annual claims administration costs for the period 7/1/2011 through the end of our projection period. The current agreement with their TPA, ICF Consulting, has an effective date of 1/2007. Under that contract, ICF received a per claim payment for each open file ("takeover fee"). ICF was then entitled to additional takeover fees paid every other year based on the number of claims remaining open. These fees are in addition to vendor fees received for claim closures, new claims assigned and other administrative and miscellaneous charges. The impact of the takeover fees on TPA costs is that the costs will tend to be higher one year and then drop the following year with this two year pattern repeating. The estimated annual claims administration costs provided by USTIF follow this pattern out through the 2017 contract end date with each two year block repeating. Subsequently, a 4% annual expense trend is applied through the end of the projection period.

- The prospective frequency and severity trends were selected based on a review of the trends in the historical data and our actuarial estimates. The selected trend rates are as follows: claim frequency trend is -0.5%, loss severity trend is +4% and ALAE severity trend is +5%. These trend rates are applied to the selected 2011/12 claim severities and frequency rate to give the future loss and ALAE projections. Please see Pro Form Exhibit 8 for more details.

- The "other cash" item in the cash flow analysis represents recovery amounts from subrogation and Federal EPA / Coast Guard funds (catastrophic release sites). These values tend to vary quite a bit from year to year. For purposes of our analysis, we have assumed $150,000 of other cash per year throughout the projection period. These values were selected based on discussions with USTIF and are intended to be placeholders which do not materially impact the results of our analysis.